

The Knowledge Society:
Innovation, Multimedia and the Postmodern City

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Abstract

This paper reports on a research project investigating issues in the design and implementation of a knowledge society in New Zealand. For New Zealand to become a knowledge society requires other kinds of understanding both of global change and local distinctiveness than we find in current studies which take large-scale advanced societies as their implicit model. This paper elaborates the report's emphasis on cultural knowledge and the role of the city and digital technologies in the formation of the knowledge society.

The Knowledge Society: Innovation, Multimedia and the Postmodern City¹

Innovation, digitisation, and knowledge society are terms that do not usually collocate with the humanities. Nor is it usual to find the humanities claiming a significant role in the knowledge society, which is typically perceived to be the domain of science and technology. We find instead that creativity and innovation are now code words for the technological invention and management of change (not terms for aesthetic and political radicalism). Furthermore, in the past decade we have moved from computers to information to knowledge as the distinguishing feature of postmodern societies, but on the basis of conceptions and practices which are grounded in scientific and business discourses.

The humanities are, however, profoundly affected by these developments in new information and communications technologies, especially in their applications in teaching and research, and by the increasing demand for social relevance as means for valuing knowledge and knowledge work. Two crucial shifts affecting the traditional grounding of the humanities in a textual canon accumulated historically are: the displacement of the authority of the past by the perceived need to anticipate and shape the future; and the challenge to the scholarly monograph in the form of the print book as the ideal type of the humanities text. A further powerful instrument of change is cultural theory as a new discursive formation in the humanities and social sciences. The turn to theory marks the displacement of history and philosophy as the foundational disciplines of modern humanities and their replacement by a reflexive, conceptually grounded orientation towards the future in postmodern humanities.

These remarks are intended to serve as a preface to a summary account of research done by HUMANZ (the Humanities Society of NZ) over the past three years. HUMANZ is being developed as a national organisation at the interface between traditional western humanities (especially as represented by the modern British university curriculum) and postmodernity as a period marked by the breakdown of modern classifications of knowledge, including that between western and indigenous knowledge traditions. An example of these shifts in traditional assumptions is a report by HUMANZ to the Ministry of Research, Science and Technology on the issue of designing a knowledge society for a small, democratic country². A succinct survey of the report and its conclusions will provide a basis for considering some of its specific implications for thinking about relationships between the knowledge society, communications media and the city.

1. Knowledge Society and Cultural Knowledge

As analysis of the conditions needed for a knowledge society to come into existence has extended beyond an association between information, new ICTs and innovation in product development to more complex enquiries into the embeddedness of technology in social and cultural practices in specific organisational settings. In this sense, the pertinence of the humanities to the formation of an adequate account of the knowledge society has become more apparent. Not that 'the humanities' can be considered a static term in any equation which aims to specify the characteristics of a knowledge society. Indeed, if the knowledge society is a distinctively postmodern social formation, then the kinds of humanities that can imaginatively and critically engage with it and contribute to its formation must be distinctively postmodern as well.

Furthermore, the term 'knowledge society' itself is an instance of an orientation towards the future. Like William Gibson's term 'cyberspace', it signifies a state or condition that has been conceptualised ahead of its actual existence; not discovered already formed so much as an outline to be filled in on the screen of the future.

2. The Research Project

The HUMANZ Knowledge Policy Research Group adopted the following characterisation of the knowledge society:

The term 'knowledge society' identifies the dominant feature of the social transformations associated with *globalisation* as the world-wide integration of economic activity, *information* as the raw material of production, and *communication* through electronic networks as a global medium of social exchange.

Although it has been usual for the traditional humanities to focus on the 'human' rather than the 'economic' dimensions of society and culture, it is no longer possible to keep these dimensions separate. While maintaining that the economy is a subset of society, not the determinant of it, we characterised it as follows:

Capitalism as the economic engine of the knowledge society develops by creating new markets for new products. Both markets and products are increasingly differentiated, with information goods (cultural and media products) and the informational aspect of primary products becoming increasingly important. Economic activity is increasingly concentrated in urban areas, and its base material is information.

The parameters which we concluded are of greatest significance in any attempt to evolve a knowledge society in New Zealand were expressed as a set of propositions grounded in the fact that New Zealand is a small nation in an increasingly complex world order. For New Zealand to become a knowledge society requires other kinds of understanding both of global change and local

distinctiveness than we find in current studies which take large-scale advanced societies as their implicit model.

The propositions are:

- Innovation and creativity are complex social and cultural processes that are increasingly foregrounded as the content and context of production becomes more cultural in character and society and markets become more highly differentiated.
- What is described as the convergence between arts and sciences is actually the breakdown of modern Western classifications of knowledge and the institutions that have regulated and reproduced them. It is also the consequence of the increasing importance of culture as a component in economic production, and the diffusion of scientific and technological knowledge throughout society.
- The process of disintegrating hierarchical structures in business organisations is being repeated in other sectors of society, including tertiary education. Experts increasingly relate to one another across organisational and discipline boundaries in the search for solutions to complex problems.
- Open access public knowledge is a necessary condition for the development of a knowledge society, just as free speech is for a democratic society.
- City-centred regions are the core of the knowledge economy. These social environments are intensively networked, knowledge-rich, organisationally diverse and culturally vibrant.
- The role of the government in a small, post-colonial nation is as a negotiator with the agencies of globalisation, and an interpreter and manager of the process of globalisation, on behalf of its citizens.
- There is no pre-existing model or template which New Zealand can simply adopt in order to become a knowledge society. Cultural history and physical location provide critical parameters for the reflexive development of such a society in a particular place.

Drawing from these propositions and the research and analysis which support them is a list of terms identifying key elements which our research indicates are characteristic of a knowledge society as a distinctive early twenty-first century social formation, and which make reflexivity possible. Taken together in various combinations (no term is more important than any other) the terms make possible properly complex thinking about the knowledge society as a **social** environment

in which knowledgeable people interact productively with each other through various media in a variety of physical and organisational settings. The fundamental requirements for successful interaction are shared cultural knowledge and a common language.

Multiple intersections	Future directed
Dense reciprocity	Increasing differentiation
Networks of shared practice	Generational time frames
Collaborative funds of knowledge	Symbolic production
Collective learning	Open systems
Embodied expertise	Organizational fluidity
Hybridising nature of knowledge	Competent failure
Positive intervention	Diverse political cultures
Common languages	Democratic institutions
Shared values	

This list is intended to work as a heuristic, a means of testing the present capabilities of New Zealand's organisational, infrastructural and conceptual resources with respect to designing and implementing a knowledge society as a purposeful action of the government and other agencies. One last point. What do we mean by cultural knowledge and why are we adopting this term? The HUMANZ Knowledge Policy Research Group is using the following working definition of **Cultural Knowledge**:

Cultural knowledge is understood to refer to a nation's whole stock of knowledge (including science and technology), as that knowledge is shaped by values, beliefs and traditions, as well as the knowledge created by artists and by people in the ordinary processes of social living.

Using the term 'cultural knowledge' for the knowledge base of a society recognises that knowledge is a collective accomplishment, where new knowledge is conditional on what has come before, is rarely if ever generated by an individual in isolation, and is inflected by the cultural, institutional, and physical settings in which it is produced. It also recognises that, just as 'science and technology' is an inclusive term for a wide spectrum of increasingly interactive disciplines and fields of knowledge, so the arts, humanities and qualitative social sciences need an inclusive term for the distinctive kinds of knowledge they generate. The arts and humanities have been producers of symbolic objects for much longer than science. The diversity of representational systems characteristic of the arts argues for a much enriched conception of knowledge societies as multi-media societies in the strong sense of societies which provide for the greatest possible interaction between different kinds of symbolic object, different modes of symbolic production.

Perhaps we are talking about creativity and innovation as paired terms because of the necessary role of the individual in the production of difference (not the individual of liberal humanism but the individual as the aware site of

intersections between the past, present and future, modes of representation, institutions and other subjectivities). Two test cases show why this is an important issue, and how the relations between arts, humanities and social sciences are not any longer easily thought about or conducted through the structures of the modern western university or polytechnic.

The first is Design. Once a craft, then a trade, design is now a high-technology field linking theoretical analysis with professions like architecture and advertising, industries of all kinds, and consumer market production in commodities like food, fashion and magazines. It sits between the traditional tertiary institutions, mixing 'pure' and 'applied' modes of thinking and learning, team as well as individual modes of production, arts and sciences, creativity and analysis. To map out the kind of institutional settings and relationships which, in New Zealand, would provide education and training in design from the adult education or community college end of the spectrum to leading-edge design work at the research and development end could provide an excellent template for reconceiving tertiary institutional forms and relationships in general.

The second is the relation between the University and traditional knowledge, focussed by the Treaty partnership. An invigorating if complex innovation within New Zealand universities over the past two decades has been the introduction of Maori Studies Departments. These new spaces within the structure of the western university have in a variety of ways challenged the basis on which the western university claims to produce certain knowledge, as well as revealed starkly the condition of the humanities and the social sciences. As 'studies', they lack disciplinary cohesion; by not being based in a world language, they lack universality; by having as their mission the recovery and perpetuation of a distinctive, non-western culture and language, they tend to occupy the same troubled position in our universities that is occupied by non-English languages; by being grounded in pre-modern, oral traditions, they lack scientificity in their knowledge even though that knowledge is of increasing interest to science for what it may reveal to be of scientific and economic value in the physical environment.

Just as western arts and humanities have not found secure lodging in the modern, science-based universities, so indigenous peoples' knowledge exemplifies the same situation. What is otherwise experienced by the humanities as 'the problem of language diversity' in the modern university may instead signal a key feature of the postmodern university, in which the diversity of languages and the multiplicity of cultures become the focus of academic organisation and purpose, in contrast to the emphasis on the unity of knowledge, which is the goal of the modern, discipline-based university.

3. Multimedia and Representations of Knowledge

Within English literature there is a famous definition of poetry, to be found in the first theory of poetry published in English in 1593, *An Apology for Poetry* by Sir

Philip Sidney. Sidney (1970: 18) writes that 'Poesy is an art of imitation . . . a representing, counterfeiting, or figuring forth - to speak metaphorically, a speaking picture - with this end, to teach and delight'. It is a nice irony that, some 400 years after its appearance through print as the first mass communication technology, this idealised, figurative theory of representation has achieved its literal, multimedia instantiation in TELEVISION advertising.

Sidney believed that the purpose of poetic representation was to communicate true moral and religious ideas about being human through narrative representations of ideal types of human actors in aesthetically pleasing written language. He shows his humanist orientation most obviously when he defines the highest end of human learning to be knowledge of oneself, and his awareness of the critical role of communications technologies in the achievement of this goal when he rejects history and philosophy as unable to achieve the same morally transformative effects as poetry can, because they refuse (in the interests of a proto-scientific conception of truthful representation) to make full use of the visual, aural, and affective capabilities of linguistic representation, as well as its cognitive capabilities, in fictional forms.

It is too easy to say that print technology is linear, engaging only the modality of sight. The invention of multi-media is a consequence of an increasingly intense concentration on separating sensory modes through technological analogues or mediations which marks the period of industrialisation in the west. The linguistic sign remains the omnicompetent medium for representation and interpretation.

While I would like to develop here a line of argument about the necessity of fiction in the production of our future(s), I need to make a different point. For Sidney, the written poem (manuscript or print) was an efficient multimedia technology, not itself literally a speaking picture as twentieth century cinema or television are but the means to generate mentally the effect of full sensory experience. In fact, if the technological medium were skilfully/artistically employed, it became transparent, replaced by the sense of direct participation in a richly detailed phenomenal world. While Sidney was intensely aware of the skill of the artist-writer, he nonetheless thought of writing as like speaking and pictorial representation as like seeing; in these ways he is fully within the traditions which now drive the production of virtual reality through much more complex technological interfaces than paper and print. 'All' that has happened in the interim, we might say, is that science and technology have fully colonised the realms of communication and representation through the industrial process of creating increasingly complex technological apparatuses. The same goal of art, to render the interface transparent in order to satisfy our desire for purely human, unmediated relations with ourselves and each other, applies now in the most advanced simulation environments.

For Sidney, unlike anything else (except direct revelation), artistically ordered signs (verbal or visual) provide access to the realm of true knowledge, which

realm does not exist in nature although nature can be progressively shaped/perfected by seeking to (or being made to) imitate the forms of truth. For Sidney, the future is in the past, an original truth to be recovered and made real through writing and embodiment. For us, the future is a hypothesis to be made real through writing and embodiment, first in multimediated simulations and then in their implementation as innovative products - of which lifestyles are the nearest to what Sidney had in mind.

What if we emphasise instead not the transparency of the medium, but the fact of it - its prosthetic function as a technological augmentation of the limits to the individually embodied mind? That is, what if we read this situation not in the terms of logocentric humanism but in poststructuralist terms - what Timothy Luke has called the dehumanities, and what Katherine Hayles has called the posthuman? The example I would like to use is the home page of the Xerox Palo Alto Research Center.³ I would like to claim it as a postmodern instance of Sidneyan poesis, a textual medium which structures apprehension and thought as a 'speaking picture'. It operates as an exemplary 'new humanities' text, heterotopic, hypertextual. It is a visual articulation/representation of conceptual space and the discursive construction of knowledge, shaping the affect of the reader through the rhetoric of colour, font and the spatial arrangement of signs. It does not compose a single narrative, but frames multiple possible narratives in the variety of interactions which are possible between the signs arrayed on the screen.

Put another way, the page is a representation of the organisation as textual construct and discursive object. It positions Xerox Parc as an agent of change through the complex shaping of action grounded in the conceptual dispositioning of personal agents; the key element which locates the organisation in postmodernity is the term 'discontinuity', which is enacted in the encouragement the screen provides to the reader to read dynamically and to interpret into specific actions and responses the opportunities offered by the play of concepts in that space. Not a single organisational narrative, or a hierarchical structure of relations, but conceptual parameters strategically framed to define the character of the organisation.

What the Xerox pages offer us as representations of the knowledge organisation is a compelling instantiation of the double bind of digital multimedia, which is an extension of the double bind of all representation. In one respect, literacy is power; to be able to read and write in this digital medium, to construct oneself as a competent subject of the technology and what it stands in for, ranging from the verbal signs of conceptualisation and abstraction to the moving imagery of the embodied real, in the graphic of the typing hands. In another respect, literacy is subjection: to be able to read and write in this digital medium is to have internalised the rules of the medium and the techne of its operation, to have internalised the machine.

The Xerox pages exemplify the texts of the new or postmodern humanities as digitally encoded and screen-based, as the texts of the traditional humanities were alphabetically encoded and paper-based. In Bolter's and Grusin's (1999: 84) term, they are hypermediated, using rather than attempting to conceal the fact that they are digital media texts: 'Hypermediacy is multiple and deviant in its suggestion of multiplicity - a multiplicity of viewing positions and a multiplicity of relationships to the object in view . . .' The work of postmodern humanities is the work defined by the Foucauldian analysis of discourse, which opposes the goal of making media transparent and foregrounds 'writing' as the principal means of reproducing and reshaping subjectivities and the institutional orders of society and culture; through textual analysis to detect the ways the organisation inscribes itself in the machine so that the rules which govern and make possible the apparently autonomous operation of the machine can be made public and, if necessary, rewritten.

4. Invention, Fiction, and the Postmodern City

The city marks out the space of society and culture, in opposition to nature; one might say that the humanities and the western city came into existence simultaneously. There are no humanities without the city; there is no civil society without the humanities. The city is the exemplar of Edward W. Soja's (1996: 6, 3) 'thirdspace', place as '*real-and-imagined*', the product of 'the simultaneity and interwoven complexity of the social, the historical, and the spatial, their inseparability and their interdependence.'

Soja (1997: 19-20, 29) elsewhere refers to

new postmodern forms and patternings or urban life that are increasingly challenging well-established modes of urban analysis. . . . Like it or not, we are all living in an increasingly postmodern world that is creating new contexts and new challenges that cannot be effectively responded to by clinging to older ways of thinking and acting politically. The city and the urban still remain sites of contestation and struggle, but the social processes and spatial forms that define these struggles are now significantly different from what they were even ten years ago.

In contrast to the modernist account of post-industrial society as rational, planned, problem-solving, and grounded in scientific and technical knowledge, Niko Stehr (1994: 230-231) argues that

knowledge societies are societies characterized, to an unprecedented degree, by self-made social relations and a self-produced future including, of course, the capacity to destroy themselves.... Knowledge is both a constant source of change and a principle of social organization. Knowledge societies offer unprecedented means to empower social actors to add to the self-transforming capacity of society. . . They are politically fragile, not because

they are liberal democracies, as some would argue, but because they are knowledge societies.

These issues are explored in a recent film by Alex Proyas, *Dark City*. In order to find what is the distinguishing feature of the human, an alien society called the Strangers has created a city in which it is always night. At midnight a great machine which 'the strangers use to amplify their thoughts' is brought into action, all motion ceases and the humans sleep while the Strangers remake the city according to their will, including changing human identities by swapping memories. The scenes of the remaking of the city are remarkable for their impression of intensely accelerated urban renewal, where whole precincts change shape and purpose through the agency of the machine that is integrated with the will of those who direct it. One of the Strangers tells the central character, John Murdoch, that 'there is nothing beyond the city', emphasising what is already a feature of global cities but is becoming more generally characteristic of urban living where people are connected globally through digital technologies and increasingly use those technologies to reshape according to cultural and economic imperatives the built environments in which they live. The imagery of the film perfectly realises an evocative phrase of William J Mitchell (1995: 133. 44), when he refers to 'soft cities of cyberspace' and notes that 'Increasingly the architectures of physical space and cyberspace - of the specifically situated body and of its fluid, electronic extensions - are superimposed, intertwined, and hybridised in complex ways.' The Xerox PARC web pages can be seen as an instantiating a precinct in the 'soft city', a structure figured textually in digital space.

The city is the site of the knowledge society; it is the focus of theory and practice in the humanities; it is scene of citizenship and the diversity of cultures. In its physical form, as much as its networks of communication and its cultural institutions, it conserves and circulates images and information that are global in origin but that combine in that locality with manifold histories and actual and remembered geographies to constitute the 'real-and-imagined' space of those who live in it. Innovation is no longer, in such a semiotically complex environment, an act of individual genius or technical expertise; it is the outcome of intense flows of multimediated communication as they intersect unpredictably, often in organisational contexts, in the acculturated consciousness of individuals. John Murdoch, towards the end of *Dark City*, after he has taken into himself the powers of the Strangers, draws a simpler conclusion when, following the destruction of the machine which effected the collective will of the Strangers, he says, 'I can make this world anything I want it to be as long as I concentrate hard enough.' By contrast, the knowledge society depends on collective accomplishment, individual creativity woven through an urban cultural, economic and technological fabric which is itself the accumulated production of society over time.

NOTES

¹ This is a revised version of a paper given at the conference, *Digitisation and Knowledge*, organised by the Centre for New Media, Auckland University of Technology, on 14 February 2001. My thanks to Sharon Harvey and the organisers of the conference for the invitation to participate.

² This report may be found on the Ministry of Research, Science and Technology's website:

<http://www.morst.govt.nz/publications/humanz/Humanz.htm>

³ The pages considered here are the home page and the "Letter to a Young Researcher":

<http://www.parc.xerox.com/parc-go.html>

<http://www.parc.xerox.com/letter.html>

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